

REMARKS

Summary of Changes Made

In previous amendments, claims 1, 3 and 5-8 were been amended, and claims 2 and 4 were canceled. Presently, claims 1 and 10 are amended substantively, claims 3 and 5-8 are amended to change dependency and/or for clarity and usage, and new claims 11-12 are added. Claim 9 is canceled as its subject matter is added to claim 1. Accordingly, claims 1, 3, 5-8, and 10-12 (8 claims) remain pending in the application. Applicant acknowledges that Amendment B, filed February 13, 2008 was not entered into the record and hence the present amendment is filed with changes relative to the condition of the application as of the Office Action of November 13, 2007. No new matter is added by this amendment.

Claim Rejections - 35 U.S.C. §102(b)(Mellul)

In the prior Office Action, the Examiner rejected claims 1, 3, and 5-8 under 35 U.S.C. 102(b) as being anticipated by Mellul, U.S. Pat. No. 5,612,021 ("Mellul"). The Examiner's reasoning for the rejections is identical to that in the previous Office Action.

Essentially, the Examiner contends that Mellul teaches a cosmetic composition that includes a wax, a resin and a hollow powder.

The Examiner found unpersuasive the claim amendments requiring the powder to be hollow and the extensive argumentation outlining the vast differences between fullerenes and not otherwise identified hollow powders, which was presented therewith in Applicants' Amendment filed April 30, 2007. The argumentation regarding such differences, found on pages 4 and 5 of said Amendment, is applicable here and incorporated herein by reference. The Examiner will note that claims 1 and 3 have been amended again to recite that the hollow powder is a hollow resin powder, and that the true specific gravity of the hollow resin powder is from 0.02 to 0.65. Further, all remaining claims (5-8) have been amended to depend from claim 1. The resin limitation is the subject matter of claim 9, added to claim 1. The limitation regarding the powder's true specific gravity finds support in paragraph 17 of the specification.

Applicants assert the novelty of claim 1, as amended, over Mellul. Mellul fails to disclose all of the limitations of claim 1, i.e., an eyelash cosmetic that includes all three of the elements presently claimed in claim 1 in the amounts recited in claim 1, with the limitation that the hollow particles be made out of resins (as opposed to fullerenes, as disclosed in Mellul),

having a true specific gravity (i.e., density) of 0.02 to 0.65. The hollow particles (fullerenes) of Mellul cannot reasonably be equated to the instantly claimed hollow resin powders. As is known in the art, fullerenes are spherical or near-spherical allotropic particles of carbon atoms bonded in certain configurations. The most common fullerene is C₆₀, a truncated icosahedron, having a particle diameter of about 1 (one) nanometer. Larger fullerenes such as C₇₂ and C₈₄ are marginally larger, on the order of a few (<5) nanometers. In contrast, the instantly claimed particles are on the order of 1000 – 10000 times larger, i.e., in the micron range, with several up to 100 microns in diameter, e.g., MFL-100 CA (particle diameter 90 to 110 microns, also in paragraph 17).

Further, as known in the art, and as evidenced in two enclosures relating to the properties of fullerenes, the density of fullerenes is 1.7 – 1.9 g/cc. This fact is shown on page 4 of the six page MSDS from the University of Notre Dame website (www.nd.edu) and on page 1 of a two-page product information sheet from chemicalland21.com. The density of the instantly claimed resin particles is far less than that of the cited fullerenes (0.02 to 0.65 g/cc vs. 1.7-1.9 g/cc). Further, the particle size of the instantly claimed particles is on the order of 1000-10000 times greater than that of fullerenes.

In the Advisory Action of March 17, 2008, the Examiner broadly asserted that “[t]he Mellul reference contains acrylic, styrene and vinyl type resins.” Given that Mellul explicitly discloses fullerenes, “molecular fullerenes, [which are noted to] consist of completely closed hollow spheres of carbon atoms,” it would seem that if Mellul desired to disclose that the “acrylic, styrene and vinyl type resins” were hollow, then a specific disclosure of “hollow resins” would be included. Mellul fails to include such a disclosure. Indeed, the passage apparently quoted by the Examiner reads “resins of the acrylic, styrene, acrylate/styrene and vinyl type may be mentioned in particular,” column 7, lines 4-6. It is not disclosed that they are hollow, and one skilled in the art reading such a passage would not conclude that they are hollow.

Clearly, Mellul cannot be said to disclose a cosmetic including the same type of particles as instantly claimed. Applicants respectfully submit that claim 1 and all claims depending therefrom (3, 5-8 and 10) are patentable, and request the withdrawal of the rejection.

Claim Rejections - 35 U.S.C. §103(a)

The Examiner rejected claims 9 and 10 under 35 U.S.C. 103(a) as obvious in view of Mellul. The Examiner essentially contends that the nature of the hollow powders is immaterial, and that resin or inorganic hollow powders are obvious variants of the hollow fullerene particles disclosed in Mellul.

The Examiner will note that claim 9 has been canceled thus rendering the rejection thereof moot. While the subject matter of claim 9 has been added to claim 1, from the discussion above, it is clear that the instantly claimed hollow resin powders are on the order of 1000 - 10000 times larger than the hollow particles of Mellul. It would not be obvious to one skilled in the art that particles having a size difference of 1000 times or more would be useful in the same application. Applicants respectfully submit that claim 1, as amended, as well as all claims that depend therefrom, are also non-obvious in view of Mellul.

Claim 10 has been amended to further require component (d) a hollow glass powder. This limitation is found in the specification at paragraph 18. Claim 10, as amended, is patentable over Mellul as Mellul fails to disclose or suggest the use of a hollow glass powder. Notification of the patentability of claim 10 is respectfully requested.

New Claims

New claims 11 and 12 are added to round out Applicants' claim coverage. Claim 11 limits the eyelash cosmetic of to further include (d) a hollow inorganic powder. This limitation is supported in the specification at paragraphs 15 and 18, hence the amendment adds no new matter. Claim 12 recites an alternative embodiment of an eyelash cosmetic, which comprises 1 to 30% by mass of (a) a wax, 0.1 to 25% by mass of (b) a resin, and 0.01 to 20% by mass of (c) a hollow resin powder, wherein the true specific gravity of the hollow resin powder is 0.02 to 0.65, and (d) 0.01 to 20 % by mass of a hollow inorganic powder. These limitations are found in paragraphs 9 and 17.

No cited reference discloses or fairly suggests a cosmetic composition having all of the limitations of new claims 11 or 12. Applicants respectfully submit that claims 11 and 12 are patentable and request notification of the same.

CONCLUSION

In light of the foregoing, Applicants respectfully request that the amendment be entered into the record and considered. Applicants respectfully submit that the present application, including claims 1, 3, 5-8, and 10-12, is in condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any additional fees resulting from this communication, please charge the same to our Deposit Account No. 18-0160, our Order No. IWI-16232.

Respectfully submitted,

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Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 08/16/2002

Reviewed on 05/21/1999

- **1 Identification of substance:**

- **Product details:**

- **Trade name:** Fullerene

- **Stock number:** 42007

- **Manufacturer/Supplier:**

Alfa Aesar, A Johnson Matthey company
Johnson Matthey Catalog Company, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Emergency Phone: (978) 521-6300
CHEMTREC: (800) 424-9300
Web Site: www.alfa.com

- **Information department:** Health, Safety and Environmental Department

- **Emergency information:**

During normal hours the Health, Safety and Environmental Department. After normal hours call Chemtrec at (800) 424-9300.

- **2 Composition/Data on components:**

- **Chemical characterization:**

Description: (CAS#)

Fullerene (CAS# 99685-96-8), 100%

- **3 Hazards identification**

- **Hazard description:**

Xi Irritant

F Highly flammable

- **Information pertaining to particular dangers for man and environment**

R 11 Highly flammable.

R 36/37/38 Irritating to eyes, respiratory system and skin.

- **4 First aid measures**

- **After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

- **After skin contact**

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

- **After eye contact**

Rinse opened eye for several minutes under running water. Then consult a

doctor.

- o **After swallowing** Seek immediate medical advice.

- **5 Fire fighting measures**

- o **Suitable extinguishing agents** Extinguishing powder. Do not use water.
- o **For safety reasons unsuitable extinguishing agents** Water
- o **Special hazards caused by the material, its products of combustion or resulting gases:**

In case of fire, the following can be released:

Carbon monoxide (CO)

- o **Protective equipment:**

Wear self-contained respirator.

Wear fully protective impervious suit.

- **6 Accidental release measures**

- o **Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources

- o **Measures for environmental protection:**

Do not allow material to be released to the environment without proper governmental permits.

- o **Measures for cleaning/collecting:**

Ensure adequate ventilation.

Keep away from ignition sources.

- o **Additional information:**

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

- **7 Handling and storage**

- o **Handling**

- o **Information for safe handling:**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

- o **Information about protection against explosions and fires:**

Keep ignition sources away.

Protect against electrostatic charges.

Fumes can combine with air to form an explosive mixture.

- o **Storage**

- o **Requirements to be met by storerooms and receptacles:**

Store in a cool location.

- o **Information about storage in one common storage facility:**

Store away from oxidizing agents.

Store away from halogens.

Do not store together with acids.

- o **Further information about storage conditions:**

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

• **8 Exposure controls and personal protection**

◦ **Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Components with limit values that require monitoring at the workplace:

Carbon black

mg/m3

ACGIH TLV	3.5; A4
Belgium TWA	3.5
Denmark TWA	3.5
Finland TWA	3.5; 7-STEL
France TWA	3.5
Ireland TWA	3.5; 7-STEL
Netherlands TWA	3.5
Russia TWA	4-STEL
Sweden TWA	3
United Kingdom TWA	3.5; 7-STEL
USA PEL	3.5

◦ **Additional information:** No data

◦ **Personal protective equipment**

◦ **General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

◦ **Breathing equipment:**

Use suitable respirator when high concentrations are present.

◦ **Protection of hands:** Impervious gloves

◦ **Eye protection:** Safety glasses

◦ **Body protection:** Protective work clothing.

• **9 Physical and chemical properties:**

◦ **General Information**

◦ **Form:** Powder

◦ **Color:** Black

◦ **Odor:** Odorless

◦

◦ **Change in condition**

◦ **Melting point/Melting range:** Not determined

◦ **Boiling point/Boiling range:** Not determined

◦ **Sublimation temperature / start:** Not determined

◦ **Flash point:** Not applicable

Value/Range	Unit	Method
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- **Flammability (solid, gaseous)** Highly flammable.
- **Ignition temperature:** Not determined
- **Decomposition temperature:** Not determined
- **Explosion limits:**
- **Lower:** Not determined
- **Upper:** Not determined
- **Vapor pressure:** Not determined
- **Density:** at 20 ° C 1.7-1.9 g/cm³
- **Solubility in / Miscibility with**
- **Water:** Insoluble

• **10 Stability and reactivity**

- **Thermal decomposition / conditions to be avoided:**
Decomposition will not occur if used and stored according to specifications.
- **Materials to be avoided:**
Oxidizing agents
Acids
Halogens
- **Dangerous reactions** No dangerous reactions known
- **Dangerous products of decomposition:** Carbon monoxide and carbon dioxide

• **11 Toxicological information**

- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Subacute to chronic toxicity:**
Elemental carbon/carbon black is mainly a nuisance dust. It is irritating to the eyes and may cause conjunctivitis, cornea damage, and inflammation of the eyelids.
- **Additional toxicological information:**
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

• **12 Ecological information:**

- **General notes:**
Do not allow material to be released to the environment without proper governmental permits.

• **13 Disposal considerations**

- **Product:**
- **Recommendation**

Consult state, local or national regulations to ensure proper disposal.

○ **Uncleaned packagings:**

○ **Recommendation:**

Disposal must be made according to official regulations.

• **14 Transport information**

○ **DOT regulations:**

○ **Hazard class:** 4.1

○ **Identification number:** UN1325

○ **Packing group:** III

○ **Proper shipping name (technical name):**

Flammable solid, organic, n.o.s., fullerene

○ **Land transport ADR/RID (cross-border)**

○ **ADR/RID class:** 4.1 Flammable solids

○ **Item:** 6c

○ **Danger code (Kemler):** 40

○ **UN-Number:** 1325

○ **Description of goods:** Flammable solid, organic, n.o.s., fullerene

○ **Maritime transport IMDG:**

○ **IMDG Class:** 4.1

○ **UN Number:** 1325

○ **Packaging group:** III

○ **Proper shipping name:** Flammable solid, organic, n.o.s., fullerene

○ **Air transport ICAO-TI and IATA-DGR:**

○ **ICAO/IATA Class:** 4.1

○ **UN/ID Number:** 1325

○ **Packaging group:** III

○ **Proper shipping name:** Flammable solid, organic, n.o.s., fullerene

• **15 Regulations**

○ **Product related hazard informations:**

○ **Hazard symbols:**

Xi Irritant F Highly flammable

○ **Risk phrases:**

11 Highly flammable.

36/37/38 Irritating to eyes, respiratory system and skin.

○ **Safety phrases:**

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

○ **National regulations**

This product is not listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical Substance Inventory. Use of this

product is restricted to research and development only.

◦ **Information about limitation of use:**

For use only by technically qualified individuals.

• **16 Other information:**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

◦ **Department issuing MSDS:** Health, Safety and Environmental Department.

◦ **Contact:** Darrell R. Sanders



FULLERENE C60

PRODUCT IDENTIFICATION

CAS NO. 99685-96-8

EINECS NO.

FORMULA C_{60}

MOL WT. 720.66

H.S. CODE

TOXICITY

SYNONYMS Buckminsterfullerene; Buckminsterfullerene C60;
Buckyball; C60-Fullerene;

DERIVATION

CLASSIFICATION

PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE black fine crystalline powder

MELTING POINT > 280 C

BOILING POINT

SPECIFIC GRAVITY 1.7 - 1.9

SOLUBILITY IN WATER practically insoluble (5 mg/ml in toluene)

pH

VAPOR DENSITY

AUTOIGNITION

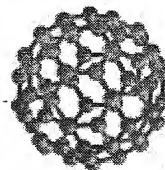
NFPA RATINGS Health: 1; Flammability: 0; Instability: 0

REFRACTIVE INDEX

FLASH POINT

STABILITY Stable at ordinary conditions.

APPLICATIONS



Fullerene is a large molecule composed of carbon entirely. The general formula is C_n , where n is even number from 32. Their shapes are roughly spherical similar to graphite with a surface net of carbon atoms connected in hexagonal and pentagonal rings. The most common one is C60(also known as "buckyball"). Fullerene is formed when vaporized and condensed carbon are combined in an inert gas. They have very high thermal and oxidative stability. They don't break but just separate from the solid intact. They are fairly insoluble in many solvents. The properties and applications are under research for the fields include;

- Diamond mimics
- Catalysts
- Cosmetics
- Superconductors
- Abrasive agent for cutting and grinding applications.
- Dyes and Pigments
- Electrodes
- Lubricant additive
- Antioxidant for medicinal uses
- Antibiotics to target bacteria
- Anticancer to certain cells
- Photoactive polymers

Recently DBU (1,8-diazabicyclo[5.4.0]undec-7-ene) is used in fullerene purification in a form of mixture with trimethylbenzene. DBU reacts to C_{70} and higher fullerenes but not

to C₆₀ fullerenes.

SALES SPECIFICATION

APPEARANCE black fine crystalline powder

PURITY 99.9% min

TRANSPORTATION

PACKING

HAZARD CLASS

UN NO.

OTHER INFORMATION

Hazard Symbols: Xi, Risk Phrases: 36/36, Safety Phrases: 22-24/25

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